

***LineUp With Math™* Alignment to  
Utah Mathematics– Pre-Algebra [2002]  
Process Standards, Core Standards and Objectives**

**Process Standards**

**Problem Solving**

**Process Standard**

5. Utilize different problem solving strategies including:
- Drawing a picture or diagram.
  - Looking for a pattern.
  - Identifying counterexamples.
  - Choosing an appropriate operation.
  - Guessing and checking.
  - Making a list, table, graph, or equation.
  - Working backwards.
  - Eliminating possibilities.
  - Making a model or simulation.
  - Solving a simpler or related problem.
  - Checking the reasonableness of results.
  - Using proportional reasoning.

***LineUp With Math™* Activities**

- Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.
- Choose and apply a variety of strategies to optimize the solution of air traffic control conflicts.

8. Estimate solutions to problems and determine the reasonableness of answers by relating them to the estimates.

- Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

**Reasoning and Proof**

**Process Standard**

2. Explain and justify problem-solving procedures.

***LineUp With Math™* Activities**

- Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

3. Examine patterns and note regularities and irregularities in various types of problems.

- Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.

**Communication**

**Process Standard**

1. Express mathematical ideas coherently and clearly to peers, teachers, and others.

***LineUp With Math™* Activities**

- Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

**Connections**

**Process Standard**

1. Formulate real-world situations that require extended investigations, solve them, and justify answers.

***LineUp With Math™* Activities**

- Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

2. Establish connections among mathematical expressions, physical models, pictorial representations, and real-world situations.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.  --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.
5. Recognize and apply mathematical ideas and relationships in areas outside the mathematics classroom, e.g., art, science, other curricular areas, and everyday life.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
<b>Representation</b>	
<b>Process Standard</b>	<b><i>LineUp With Math™</i> Activities</b>
2. Represent mathematical concepts using physical models, visualizations, and appropriate symbolic notations.	--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.
3. Represent problem situations verbally, numerically, graphically, geometrically, or algebraically.	--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.

## **Standard 1**

Students will acquire number sense and perform operations with rational numbers.

### **Objective 1**

Compute fluently and make reasonable estimates.

<b>Objective</b>	<b><i>LineUp With Math™</i> Activities</b>
3. Check the reasonableness of results using estimation.	--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

### **Objective 4**

Solve problems involving rational numbers using addition, subtraction, multiplication, and division.

<b>Objective</b>	<b><i>LineUp With Math™</i> Activities</b>
4. Solve problems using simple proportions.	--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.

## **Standard 4**

Students will understand and apply measurement tools, formulas, and techniques.

### **Objective 2**

Determine measurements using appropriate techniques, tools, and formulas.

<b>Objective</b>	<b><i>LineUp With Math™</i> Activities</b>
3. Solve problems involving rates and derived measures, e.g., miles per hour, kilometers per liter, cubic feet.	--Identify and resolve distance, rate, time conflicts in air traffic control problems by varying plane speeds or changing plane routes.